FACSIMILE TRANSMISSION COVER SHEET

Date: October 26, 2004

TO:	Examiner Kenny S. Lin
COMPANY/FIRM:	U.S. PATENT AND TRADEMARK OFFICE
PHONE NO.:	
FACSIMILE NO.:	~~703-872-9306~~ 703-746-7240 703-872-9306

FROM:	Jim Retter
COMPANY/FIRM:	Ware, Fressola, Van Der Sluys & Adolphson LLP
PHONE NO.:	(203)261-1234
FACSIMILE NO.:	(203)261-5676

CONFIRMATION BY MAIL: Yes

Number of pages (including this transmittal page): 9

If facsimile transmission is incomplete, please notify sender at (203)261-1234.

WARE, FRESSOLA, VAN DER SLUYS & ADOLPHSON
BRADFORD GREEN, BUILDING FIVE
755 MAIN STREET, MONROE, CONNECTICUT 06468
TELEPHONE NO. (203) 261-1234
FACSIMILE NO. (203) 261-5676

COMMENTS

Serial No. 09/454,566
Atty. Docket No. SAA-25 (122.161)

Attorney Docket No.: SAA-25 (122.161)
Serial No.: 09/454,566

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First named inventor: David. T. Lindner
Serial No.: 09/454,566
Filed: Dec. 7, 1999
Title: Method for adapting a computer-to-computer protocol ...
Group Art Unit: 2154
Examiner: Lin, Kenny S. (tel: 703-305-0438)

via facsimile (703) - 872-9306

PROPOSED CHANGE TO CLAIMS (Informal Communication)
(NOT FOR ENTRY)

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Applicant provides the following as a proposed change to the claims in the above, in response to a phone call by the Examiner on 15 October 2004 in which the Examiner suggested that the limitations of claims 2 and 4 be added to claim 1 to distinguish over U.S. Pat. No. 5,949,756 to Kienberger.

CERTIFICATE OF MAILING/TRANSMISSION (37 C.F.R. § 1.8(a))

I hereby certify that this correspondence is, on the date shown below, being:

MAILING

☐ Deposited with the United States Postal Service with sufficient postage as first class Mail in an envelope addressed to the Commissioner for Patents, PO Box 1450, Alexandria, VA 22313-1450.

Date: OCT 26, 2004

FACSIMILE

☒ Transmitted by facsimile to the U.S. Patent and Trademark Office.

Sue Muro

Signature
Sue Muro
(type or print name of person certifying)

In the disclosure:

Please change the paragraph beginning at page 8, line 9, as follows:

--Fig. 1 shows an industrial control system ~~as~~ including ~~the~~ a PLC ~~connected,~~ connected over a general purpose off the shelf ~~network,~~ network to control or monitoring elements, namely, element 1, element 2, and element 3. Each of the control or monitoring elements is ~~shown as~~ under the control of a controller, which is itself connected to the network via a network I/O device.--

Please change the paragraph beginning at page 9, line 6, as follows:

--Preferably, in using the method of the present invention, any firmware of the network I/O devices should be based on MODBUS TCP/IP, as defined by the Open MODBUS/TCP specification, release 1.0, published on the Internet (at http//www.modicon/openmbus/standards/openmbus.htm) on 29 March, 1999, and hereby incorporated by reference. This standard defines how MODBUS commands and responses are delivered over the Internet to and from a MODBUS server using the well known port 502. The firmware of the network I/O devices also preferably supports ICMP (Internet Control Message Protocol) echo requests, such as PING.--

Please change the paragraph beginning at page 11, line 26, as follows:

--Referring now to Fig. 4, the method of the present invention for using a general purpose off the shelf network to provide the connectivity needed for an industrial control system, including a programmable logic controller and elements as shown

in Figs. 1 and 2, is shown as including, in a preferred embodiment, four steps. A first step is for a user of the industrial control system to tune how long the PLC waits for a response to a query from a network I/O device for a control or monitoring element. Some monitoring and control elements take longer to respond to a query ~~then~~ than others. To decrease the time it takes to complete a cycle of its routine operation, the method of the present invention provides for this tuning based on time to respond. By this, instead of waiting a constant amount of time, which would have to be long enough for the slowest element to respond, the PLC is configured to wait less time for a response to a query in the case of the more ~~rapid~~ rapidly responding elements.--

Please change the paragraph beginning at page 13, line 7, as follows:

--Thus, if the user tunes the system to query a particular element relatively frequently, the PLC will more likely establish a permanent type TCP connection to the element. Such connections have as a cost some overall slowing of the network communications, but ~~serve~~ save on the time needed to perform each communication. In the case of Ethernet, establishing a permanent-type TCP connection eliminates three connect packets and three disconnect packets for every MODBUS command/response pair. Usually, a general purpose off-the-shelf network will support only a limited number of permanent-type connections, and a PLC operating according to the present invention will automatically rank order its monitoring and control elements based on how frequently each is queried, so as to take maximum advantage of the limited number of permanent-type connections supported by the network.--